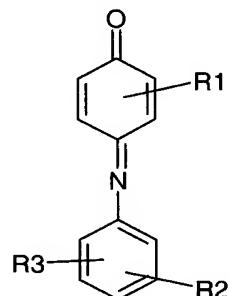


**WHAT IS CLAIMED IS:**

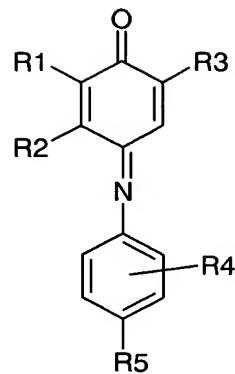
1. A coating composition for making a protein microarray, the composition comprising
  - a gelling agent or a precursor to a gelling agent and microspheres; the microspheres containing a dye represented by Formula (I):



Formula (I)

wherein: R1 is one or more substituents selected from the group consisting of H, Cl, Br, I, substituted or unsubstituted alkyl, alkylamino, arylamino, acyl, nitrile, alkoxy, aryl, heteroaryl, sulfone, sulfamoyl, sulfonamido, or substituted or unsubstituted amido; and R2 and R3 are independently H, substituted amino, alkoxy, substituted or unsubstituted alkyl, substituted amido, or Cl.

2. A coating composition according to claim 1 wherein the microspheres contain a dye represented by Formula (II):



Formula (II)

wherein:

- R1 is Cl, Br or I;
- R2 is substituted or unsubstituted alkyl, substituted or unsubstituted aryl, or substituted amido;
- R3 is substituted or unsubstituted amido;
- R4 is H, Cl, substituted amido, substituted or unsubstituted alkyl, or alkoxy; and
- R5 = substituted amino.

3. A coating composition according to claim 2 wherein:

- R1 is Cl;
- R2 is H, or substituted or unsubstituted alkyl;
- R3 is substituted or unsubstituted amido;
- R4 is substituted or unsubstituted alkyl; and
- R5 = dialkylamino

4. A coating composition according to claim 1 wherein the gelling agent is gelatin.

5. A coating composition according to claim 1 wherein the gelling agent undergoes thermal gelation.

6. A coating composition according to claim 4 wherein the gelatin is alkali pretreated gelatin.

7. A coating composition according to claim 1 wherein the microspheres have a mean diameter between 1 and 50 microns.

8. A coating composition according to claim 1 wherein the microspheres have a mean diameter between 3 and 30 microns.

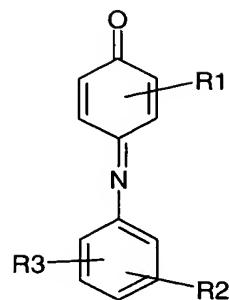
9. A coating composition according to claim 1 wherein the microspheres have a mean diameter between 5 and 20 microns.

10. A coating composition according to claim 1 wherein the microspheres comprise a synthetic or natural polymeric material.

11. A coating composition according to claim 10 wherein the polymeric material is an amorphous polymer.

12. A coating composition according to claim 11 wherein the amorphous polymer is polystyrene.

13. A microarray comprising:  
a substrate coated with a composition comprising  
a gelling agent or a precursor to a gelling agent and microspheres;  
the microspheres containing a dye represented by Formula (I):



### Formula (I)

wherein:

R1 is one or more substituents selected from the group consisting of H, Cl, Br, I, substituted or unsubstituted alkyl, alkylamino, arylamino, acyl, nitrile, alkoxy, aryl, heteroaryl, sulfone, sulfamoyl, sulfonamido, or substituted or unsubstituted amido; and

and R2 and R3 are independently H, substituted amino, alkoxy, substituted or unsubstituted alkyl, substituted amido, or Cl; and

wherein the microspheres are immobilized on the substrate.

14. A microarray according to claim 13 wherein the gelling agent is gelatin.

15. A microarray according to claim 13 wherein the microspheres bear chemically active sites.

16. A microarray according to claim 15 wherein the chemically active site is bioactive.

17. A microarray according to claim 15 wherein the substrate comprises glass, plastic, cellulose acetate, or polyethyleneterephthalate.

18. A microarray according to claim 13 wherein the substrate is flexible.

19. A microarray according to claim 13 wherein the microspheres are immobilized on the substrate in a concentration between 100 and 1 million microspheres per cm<sup>2</sup>.

20. A microarray according to claim 13 wherein the microspheres are immobilized on the substrate in a concentration between 1000 and 200,000 microspheres per cm<sup>2</sup>.

21. A microarray according to claim 13 wherein the microspheres are immobilized on the substrate in a concentration between 10,000 and 100,000 microspheres per cm<sup>2</sup>.

22. A microarray according to claim 13 wherein the microspheres are immobilized on the substrate upon gelation of the gelling agent.

23. A microarray according to claim 13 wherein the microspheres carry surface active sites.

24. A microarray according to claim 23 wherein the surface active sites carry organic or inorganic attachments.

25. A coating composition according to claim 23 wherein the surface active site is capable of chemical or physical interaction.

26. A microarray according to claim 23 wherein the surface active site is bioactive.

27. A microarray according to claim 26 wherein the bioactive site interacts with nucleic acid, protein, or fragments thereof.

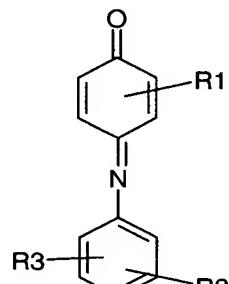
28. The microarray of claim 13 wherein the microspheres are randomly distributed on the substrate.

29. The microarray of claim 13 wherein the substrate is characterized by an absence of specific sites capable of interacting physically or chemically with the microspheres.

30. A method of making a microarray comprising the steps of:  
--providing a substrate; and  
--coating on the substrate the composition according to claim 1;  
wherein said composition is fluid during coating and the microspheres become immobilized in the plane of the coating due to sol-gel transition.

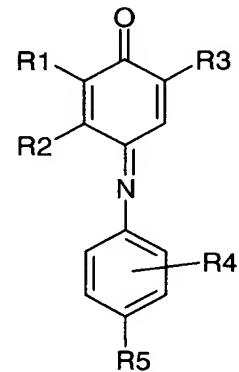
31. The method of claim 29 wherein the microspheres become randomly immobilized on the substrate.

32. A microsphere for making an array, the microsphere comprising a capsule containing a dye represented by Formula (I):



Formula (I)

33. A microsphere for making an array, the microsphere comprising a capsule containing a dye represented by Formula (II):



Formula (II)